



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,626	04/01/2002	Hideaki Fukuyo	KIN61USA	1419

270 7590 09/11/2003

HOWSON AND HOWSON  
ONE SPRING HOUSE CORPORATION CENTER  
BOX 457  
321 NORRISTOWN ROAD  
SPRING HOUSE, PA 19477

EXAMINER

SHEEHAN, JOHN P

ART UNIT

PAPER NUMBER

1742

DATE MAILED: 09/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/089,626

Applicant(s)

FUKUYO ET AL.

Examiner

John P. Sheehan

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 5-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 5-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 6, 7, 9 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- I. Claims 1, 6, 7 and 9 are indefinite in that the meaning of the phrase, "alkali earth metals" (line 2 of each claim) is not known. The Examiner could not find a definition for the term, "alkali earth metals" in the specification nor in various chemical dictionaries and chemistry books.

- II. In like manner, claims 1, 6, 7 and 9 are indefinite in that the meaning of the terms, "heavy metals" and "light metals" (line 3 of each claim) are not known. The Examiner could not find a definition for the terms, "heavy metals" and "light metals" in the specification nor in various chemical dictionaries and chemistry books.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

Art Unit: 1742

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 2 and 8 to 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over each of Rosenberg et al. (Rosenberg, US Patent No. 6,309,595) or Shimotori et al. (Shimotori, US Patent No. 4,891,066, cited in the IDS submitted June 25, 2002).

Each of the references teaches a titanium sputtering target having a composition that overlaps the titanium sputtering target composition recited in applicants' claims (see Rosenberg, column 9, lines 42 to 48; and Shimotori, column 4, the Table, Comparative Example 3). Rosenberg's disclosure of an oxygen content of less than about 50 ppm (column 9, lines 47 and 48) is considered to overlap applicants' claimed oxygen content of 20 ppm or less than. Shimotori's oxygen content of 20 to 100 ppm (column 4, line 42) is also considered to overlap applicants' claimed oxygen content of 20 ppm or less than.

Art Unit: 1742

The claims and the references differ in that the references do not teach the exact same proportions as recited in applicants' claims and the references are silent with respect to the hardness of the sputtering target.

However one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the composition of the titanium sputtering targets taught by the references overlap the composition of applicants' claimed titanium sputtering targets and therefore are considered to establish a prima facie case of obviousness, In re Peterson 65 USPQ2d 1379 (CAFC 2003, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

Regarding the hardness of the sputtering target, it is the Examiner's position that in view of the fact that the sputtering targets taught by the references have compositions that overlap the sputtering target compositions recited in the instant claims it would be expected that the prior art sputtering targets would possess all the same properties as recited in the instant claims, In re Best, 195 USPQ, 430 and MPEP 2112.01.

"Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, In re Best, 195 USPQ 430, 433 (CCPA 1977). 'When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.' In re Spada, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In re Best, 195 USPQ 430, 433 (CCPA 1977)." see MPEP2112.01.

Art Unit: 1742

6. Claims 1, 5 to 7 and 11 to 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over each of Rosenberg et al. or Shimotori et al. as applied to claims 2 and 8 to 10 above, and further in view of Annavarapu (cited by applicants in the IDS submitted June 25, 2002).

Rosenberg and Shimotori teach and are applied as set forth above.

Annavarapu teaches titanium sputtering targets having a crystal grain size of less than 20 microns (column 3, lines 27 to 38). Annavarapu teaches that controlling the grain size to this size helps improve the sputter deposition rate and helps maintain the uniformity of the deposited film across the substrate (column 3, lines 27 to 31).

The claims and Rosenberg or Shimotori differ in that Rosenberg and Shimotori are silent with respect to the grain size of the disclosed titanium sputtering target.

However one of ordinary skill in the art at the time the invention was made would have been motivated to control the grain size of Rosenberg's and Shimotori's titanium sputtering targets to less than 20 microns so as to improve the sputter deposition rate and helps maintain the uniformity of the deposited film across the substrate as taught by Annavarapu.

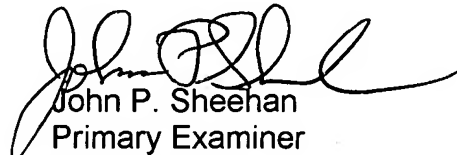
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Sheehan whose telephone number is (703) 308-3861. The examiner can normally be reached on T-F (6:30-5:00) Second Monday Off.

Art Unit: 1742

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (703) 308-1146. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

  
John P. Sheehan  
Primary Examiner  
Art Unit 1742

jps